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EXAMINER
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GOLOBOY, JAMES C

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The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/825,065  
Filing Date: April 14, 2004  
Appellant(s): DUYCK ET AL.

**MAILED**  
**DEC 27 2007**  
**GROUP 1700**

Daniel Reitenbach

For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11/15/07 appealing from the Office action mailed 5/17/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,268,394	WHEELER	7 December 1993
RE37,101	DEETMAN	20 March 2001
5,310,491	DOWNS	10 May 1994

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 5-9, 11-19 and 22 stand rejected under 35 USC 103(a) as unpatentable over Wheeler (U.S. Pat. No. 5,268,394) in view of Deetman (U.S. Pat. No. RE37,101), in light of the evidence provided by Downs (U.S. Pat. No. 5,310,491).

Wheeler, in the reference's Claim 1 and column 5 lines 13-48, discloses an additive composition comprising an acridan having the structure recited in the currently presented claims 1 and 10 (where  $R_3$  and  $R_4$  are hydrogen), a diphenylamine, and a hindered phenol. In the reference's Claim 8, Wheeler discloses that this composition may be used along with a lubricant.

Claims 1 and 5-9 recite the limitation that the alkylated diphenylamine in the composition is "residual". Based on the examples in on pages 26 and 27 of the specification, it is clear that "residual" alkylated diphenylamine is not limited to a small unavoidable impurity remaining after the condensation reaction, but instead can be more than three times the amount of acridan present in the composition. Therefore, it is

clear that the antioxidant mixture in the composition of Wheeler, where the diphenylamine is added separately after the acridan is isolated meets the limitations of the antioxidant mixture of claims 1, which is in product-by-process form.

From column 4 line 39 through column 5 line 10 Wheeler teaches the synthesis of the acridan involving the condensation of a diphenylamine with a ketone. In column 4 line 55 Wheeler teaches that the diphenylamine may be alkylated, as recited in claim 5, 13, and 15, and in column 4 line 41 further teaches that the ketone can be acetone, as recited in claim 6, 14, and 16.

In component (c) of the reference's claim 1, Wheeler teaches that the composition also comprises a hindered phenol, which is an antioxidant as recited in claims 7-8 and 17-18. In column 5 lines 16-17 Wheeler discloses 2,6-di-t-butyl-4-methyl phenol, recited in claims 9 and 19, as a suitable hindered phenolic antioxidant.

The differences between Wheeler and the currently presented claims are:

i) Wheeler discloses the use of an alkylated diphenylamine, but not specifically a nonylated or butylated octylated diphenylamine. This relates to claims 1, 5-9, and 12.

ii) Wheeler does not disclose a method of adding the antioxidant mixture to the lubricant composition where the alkylated diphenylamine is residual alkylated diphenylamine. This relates to claims 11-19 and 22.

With respect to i), Deetman, in column 9 lines 58-61 teaches the use of Irganox L57 as an antioxidant in a functional fluid composition, and in column 1 lines 16-17 teaches that functional fluids may be lubricants. Downs, in column 7 lines 36-38, states that Irganox L57 is a butylated octylated diphenylamine, as recited in claims 1, 11, and

22. The use of the Irganox L57 of Deetman in the composition of Wheeler therefore meets the limitations of the diphenylamine component of claims 1, 5-9, and 12.

With respect to ii), In column 10 lines 12-13 Deetman further teaches that an acridan may be used as an antioxidant additive, and in column 10 lines 15 teaches that the acridan and the alkylated diphenylamine may be used in combination ("mixtures thereof"). In column 10 lines 7-10 Deetman reports that the reaction products of diphenylamine and acetone or complex diarylamines and ketones may be used as antioxidants.

In light of the above teachings, it would have been obvious to one of ordinary skill in the art to use Irganox L57 as the diphenylamine antioxidant of Wheeler, as Deetman teaches that it is a suitable antioxidant for lubricating compositions, and it would also have been obvious to one of ordinary skill in the art that the reaction mixture of Wheeler, containing acridans and diphenylamines (column 4 lines 45-48 of Wheeler), was suitable for use as an antioxidant additive without the isolation of the acridan. Therefore, the method claims 11-19 and 22 as well as the composition claims 1 and 5-9 are rendered obvious.

#### **(10) Response to Argument**

Appellants argue that while Wheeler and Deetman teach that acridans can be used in combination with diphenylamines as lubricating additives, Wheeler only teaches the use of acridans that have been separated from the diphenylamine used in their manufacture, while the present invention utilizes a mixture of the acridan and the

residual alkylated diphenylamine used in its manufacture. Appellant argues that the use of the residual alkylated diphenylamine results in economic benefits.

With regard to claims 1 and 5-9, this argument is unpersuasive. Claims 1 and 5-9 are composition claims where the antioxidant mixture is recited in product-by-process form. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The examiner maintains, and appellant has not disputed, that Wheeler and Deetman teach a composition comprising a lubricant, a mixture of antioxidants comprising butylated octylated diphenylamine and an acridan with the structure recited in component (b) of claim 1, and a hindered phenolic antioxidant. The composition of Wheeler and Deetman therefore appears to be substantially identical to that of claims 1 and 5-9. Appellant has not shown any evidence that there is a difference between compositions made by the process recited in the claims and the composition of Wheeler and Deetman.

With regard to the method claims 11-19 and 22, appellant's arguments are also unpersuasive. The examiner has set forth the case that it would have been obvious to one of ordinary skill in the art to use the residual alkylated diphenylamine in the antioxidant mixture of Wheeler and Deetman, in light of Wheeler and Deetman's teachings that the acridan can be used in combination with a diphenylamine, and

Deetman's further teaching that the reaction products of diphenylamine and acetone or complex diarylamines and ketones may be used as antioxidants. Appellant asserts that the claimed method of using the residual alkylated diphenylamine is cheaper than the process of Wheeler, where the residual alkylated diphenylamine is isolated from the reaction mixture by fractional distillation and the acridan is then combined with a fresh diphenylamine antioxidant. Appellant argues that "...it is undeniable that a process using unpurified starting material will always be cheaper than the same process using highly purified material". However, appellant has not actually claimed a specific process for reacting the alkylated diphenylamine with a ketone or aldehyde, let alone the same process recited in column 4 lines 39-66 of Wheeler, so the cost of the appellant's process versus the process of Wheeler cannot be judged. Appellants themselves provide three separate processes for forming the antioxidant mixture on pages 19-20 of the specification, all of which utilize different catalysts and reaction conditions, which will result in different costs. One process involves the use of high temperatures and pressures, unlike the process of Wheeler, which may add cost to the process. Appellant has not provided any data regarding the costs of compositions prepared by the currently claimed method versus compositions prepared by the method of Wheeler.

Wheeler's teaching that the acridan is isolated by fractional distillation of the crude reaction mixture also needs to be considered in the context of the reference. Wheeler teaches this process in a section titled "Synthesis of the Acridans", which naturally includes a process for isolating the acridan compounds. This should not be taken as a teaching away from the use of the residual alkylated diphenylamine in the



antioxidant mixture--to the contrary, Wheeler teaches that the acridans are advantageously used in combination with a diphenylamine.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

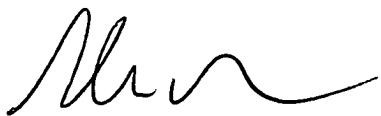
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

*James C. Goloboy*  
James Goloboy

Conferees:

Glenn Caldarola



/Romulo H. Delmendo/

Romulo H. Delmendo, Appeal Conferee